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Measurements of harmonic flow and their fluctuations in $^{16}\text{O}+^{16}\text{O}$ collisions at $\sqrt{s_{\text{NN}}} = 200$ GeV from STAR

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The study of the Quark-Gluon Plasma (QGP) properties is a fundamental aspect of high-energy nuclear physics. However, the understanding of QGP formation and evolution is still limited by various uncertainties in the initial stages of the collision. One approach to gain more insights into the initial stages is to study small-sized systems, which, due to their reduced system size and lifetime, may provide a better understanding of the possible formation and evolution of QGP. The recently reconstructed data from minimum bias and central triggered $^{16}\text{O}+^{16}\text{O}$ collisions at 200 GeV from STAR provide an exciting opportunity to investigate the initial stages of the small system and gain more insights into the formation and evolution of the QGP. In this poster, we present the measurement of v_n and its fluctuations as a function of p_{T} , multiplicity, and rapidity in O+O collisions. The results are compared with hydrodynamic and transport model calculations to discuss the physics implications in terms of the initial condition and the emergence of collectivity in small systems.

Category

Experiment

Collaboration (if applicable)

STAR Collaboration

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